SONY

SWITCHER PROCESSOR PACK

DVS-9000-C
DVS9000SF-C

PRODUCTION SWITCHER PROCESSOR

DVS-9000
DVS-9000SF

HK-PSU04

BKDS-9160

BKDS-9161

BKDS-9162

BKDS-9210

MKS-8110SD

MKS-8111SD

INSTALLATION MANUAL
1st Edition

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

DVS-9000	Serial No. 10001 and Higher
DVS-9000SF	Serial No. 10001 and Higher
BKDS-9160	Serial No. 10001 and Higher
BKDS-9161	Serial No. 10001 and Higher
BKDS-9162	Serial No. 10001 and Higher
BKDS-9210	Serial No. 10001 and Higher
MKS-8110SD	Serial No. 10001 and Higher
MKS-8111SD	Serial No. 10001 and Higher
HK-PSU04	Serial No. 10001 and Higher

Attention-when the product is installed in Rack:

1. **Prevention against overloading of branch circuit**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. **Providing protective earth**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. **Internal air ambient temperature of the rack**
   When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. **Prevention against achieving hazardous condition due to uneven mechanical loading**
   When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

5. **Install the equipment while taking the operating temperature of the equipment into consideration**
   For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

6. **When performing the installation, keep the rear of the unit 10 cm (4 inches) or more away from walls in order to obtain proper exhaust and radiation of heat.**

When using a LAN cable:

For safety,do not connect to the connector for peripheral device wiring that might have excessive voltage.

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Manual Structure

Purpose of this manual

This manual is the installation manual of Switcher Processor Pack DVS-9000-C/DVS9000SF-C and their optional boards and units.
This manual is intended for use by trained system and service engineers, and describes the information on installing the DVS-9000-C/DVS9000SF-C system.

Related manuals

The following manuals are prepared for DVS-9000-C/DVS9000SF-C and their optional boards and units.

- **Operation Manual (Supplied with DVS-9000-C/DVS9000SF-C)**
  This manual describes the application and operation of DVS-9000-C/DVS9000SF-C system.

- **Maintenance Manual (Available on request)**
  This manual describes the detailed service information.
  If this manual is required, please contact your local Sony Sales Office/Service Center.

- **"Semiconductor Pin Assignments" CD-ROM (Available on request)**
  This "Semiconductor Pin Assignments" CD-ROM allows you to search for semiconductors used in B&P Company equipment.
  Semiconductors that cannot be searched for on this CD-ROM are listed in the maintenance manual for the corresponding unit. The maintenance manual contains a complete list of all semiconductors and their ID Nos., and thus should be used together with the CD-ROM.
  Part number: 9-968-546-XX

Contents

This manual is organized by following sections.

Section 1 Installation

This section describes the operating environment, power supply, installation space, installation of optional boards and units, rack mounting, connectors, input and output signals of connectors, checking upon completion of installation, and system configuration.

Section 2 Service Overview

This section describes the troubleshooting and periodic inspection and maintenance.

Section 1
Installation

1-1. Operating Environment

Operating guaranteed temperature : +5 ˚C to +40 ˚C
Performance guaranteed temperature : +10 ˚C to +35 ˚C
Operating humidity : 10 % to 90 %
(relative humidity)
Storage temperature : −20 ˚C to +60 ˚C
Mass (when all options are installed) :
DVS-9000 : Approx. 43 kg
DVS-9000SF : Approx. 25 kg

Prohibited locations for installation

- Areas where the unit will be exposed do direct sunlight or any other strong lights.
- Dusty areas
- Areas subject to vibration.
- Areas with strong electric or magnetic fields.
- Areas near heat sources.
- Areas subject to electrical noise.
- Areas subject where is subjected to static electricity.

Ventilation

The inside of the DVS-9000-C/DVS9000SF-C (DVS-9000 series hereafter) is cooled by a fan (both sides).
The power supply can be damaged if the exhaust vent (both sides) and air intake (front panel) are blocked or the fan is stopped.
Therefore, leave a blank space of more than 10 cm in the front and both sides of the DVS-9000 series).

1-2. Power Supply

1-2-1. Power Specifications

A switching regulator is used for the power supply of this unit. The voltage within the range of 100 V to 240 V can be used without changing the supply voltage.

Power requirements : AC 100 to 240 V ±10 %
Power frequency : 50/60 Hz
Current consumption (when all options are installed) :
DVS-9000 : 8.6 to 4.2 A
DVS-9000SF : 5.5 to 2.5 A

Notes

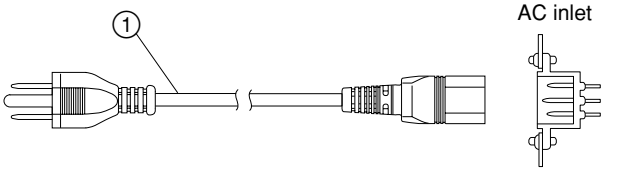
- As the inrush current at turn-on is a maximum 60 A (at 100 V)/110 A (at 230 V), the capacity of the AC power source must be commensurate with this load.
  If the capacity of the AC power is not adequately large, the AC power source braker will operate or the unit will abnormally operate.
- The DVS-9000 contains the two power supply units as the standard configuration. A maximum of four power supply units may be installed. When starting up the DVS-9000, be sure to turn on the power of two or more power supply units.
- The DVS-9000SF contains the single power supply unit as the standard configuration. A maximum of two power supply units may be installed. When starting up the DVS-9000, be sure to turn on the power of one or more power supply units.

1-2-2. Recommended Power Cord

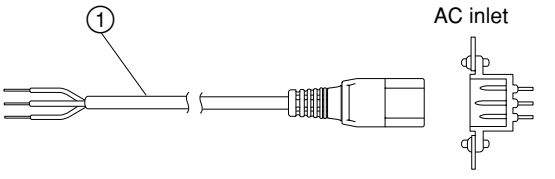
WARNING

- The power cord is not supplied with the DVS-9000 series.
  Be sure to use the power cord that is applicable to places in the area.
  To avoid a fire or an electric shock, be sure to use the designated power cord.
- Do not damage the power cord otherwise a fire or electric shock may result.

For customers in the U.S.A. and Canada
① Power cord, 125 V 10 A (2.4 m) : ⚠1-557-377-11

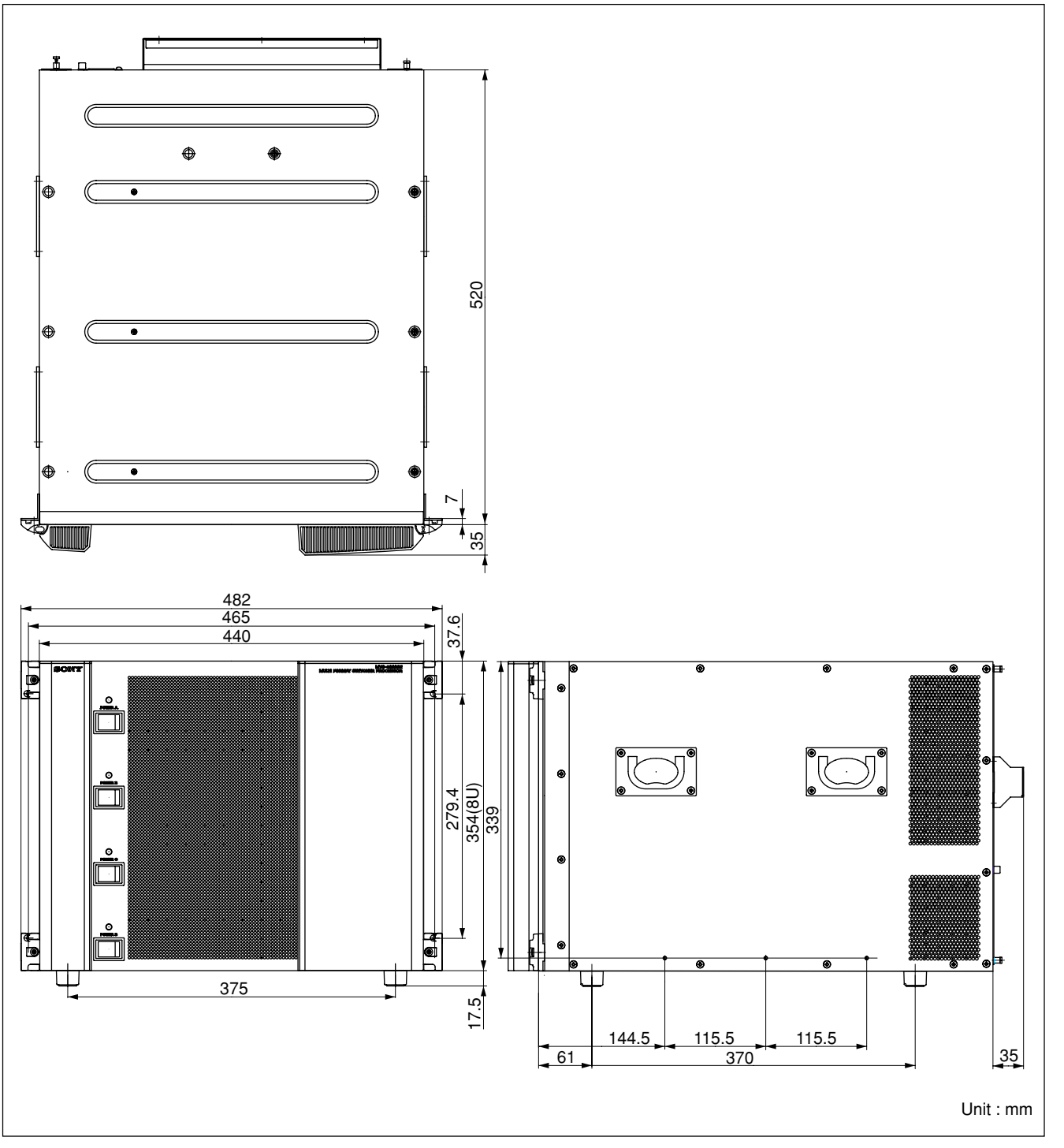


For customers in the all European countries
① Power cord, 250 V 10 A (2.4 m) : ⚠1-782-929-21

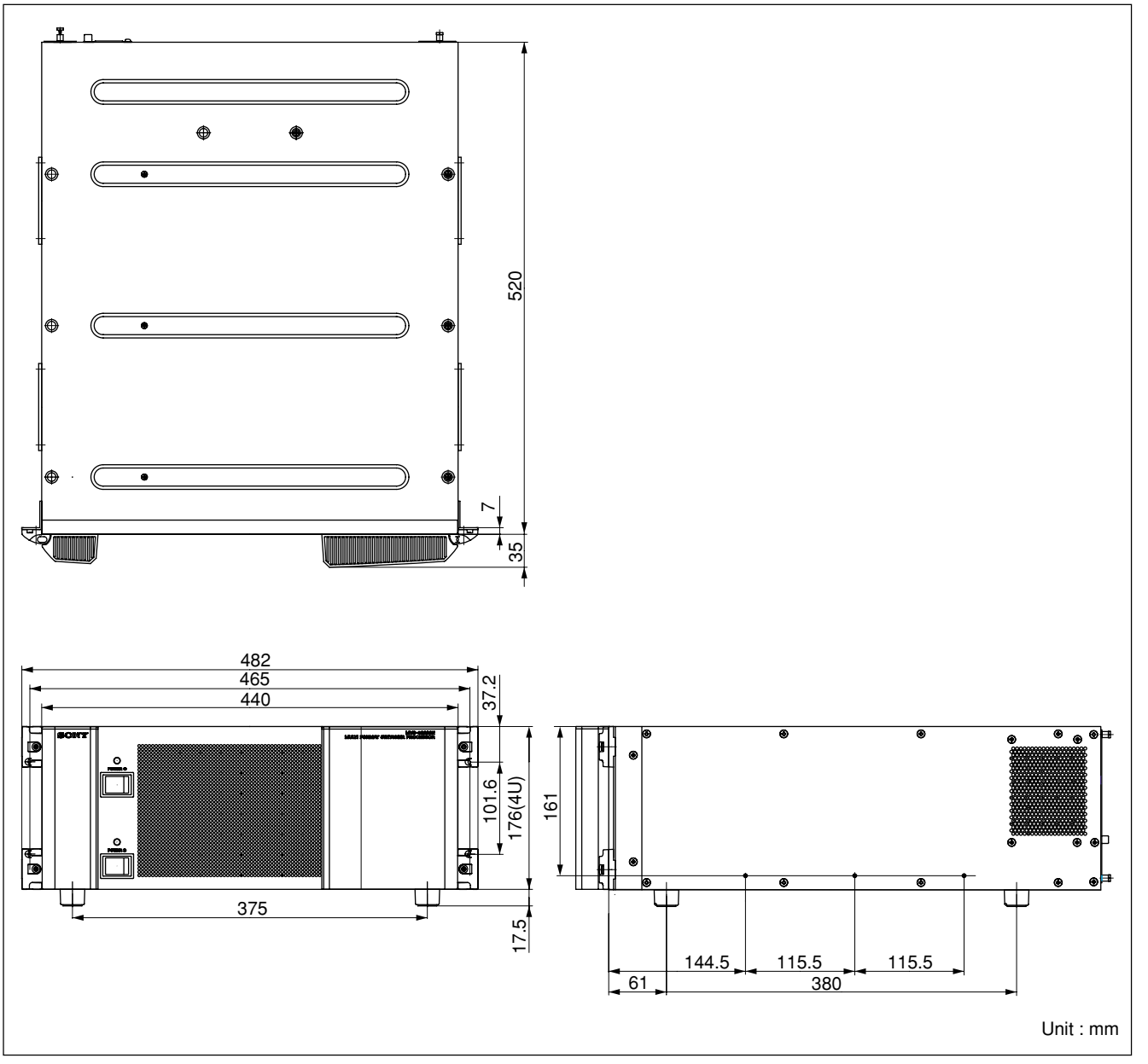


1-3. Installation Space (External dimensions)

1-3-1. DVS-9000



1-3-2. DVS-9000SF



1-4. Installing the Options

The DVS-9000-C/DVS9000SF-C is shipped from the factory with the necessary option boards (refer to the following table) already installed in accordance with the specified system configuration.
The following options are available for the DVS-9000/9000SF.

DVS-9000/9000SF Option List

Model name	Plug-in board	Connector board
BKDS-9160 (DVS-9000 only) 24 Output Board	OUT-26 board	CNO-19 board
BKDS-9161 (DVS-9000 only) 8 Monitor Output Board	–	CNO-20 board
BKDS-9162 (DVS-9000SF only) 12 Output Board	–	CNO-19 board
BKDS-9210 Mix/Effect Board	MIX-46 board	–
MKS-8110SD 17 Input Board	–	CNI-10 board
MKS-8111SD (DVS-9000 only) Additional 12 Input Board	–	CNI-17 board
HK-PSU04 Power Supply Unit	–	–

1-4-1. Installing the Plug-in Boards

Each plug-in board of the Production Switcher Processor DVS-9000/9000SF is allocated to a specific slot into which they must be installed. Check to see that the respective plug-in boards are installed in their respective slots.
The name of the board is shown near the eject lever at the left-most end of each plug-in board.
Names of the plug-in boards and the slot numbers, to which the plug-in boards are allocated, are shown on the Extract PWB stopper assembly inside the front panel of the DVS-9000/9000SF. Install the respective plug-in boards according to this instruction.

Note

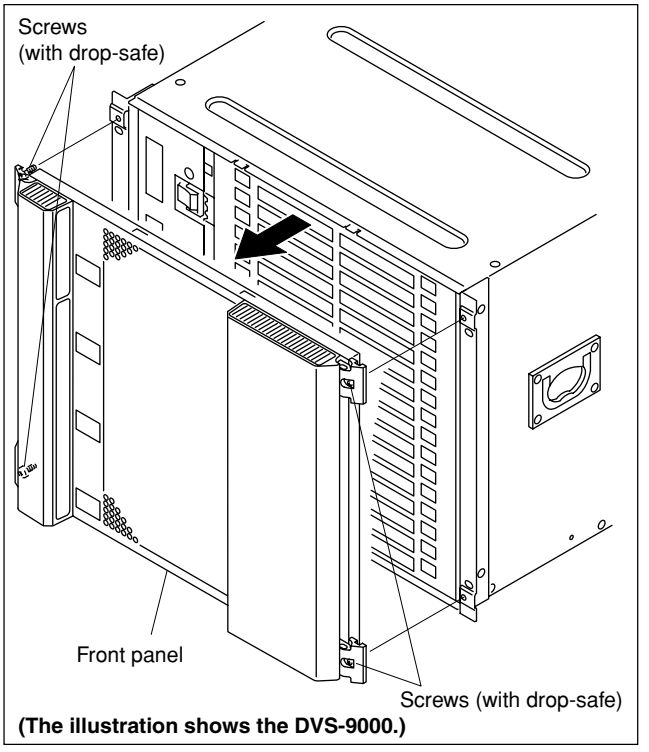
Check to see that connectors of the plug-in boards are securely inserted into the mother board (DVS-9000 : MB-985 board, DVS-9000SF : MB-986 board) without loose contact.
If any plug-in board is inserted into the incorrect slot, it causes a system error and the system will not work correctly.

CAUTION

Be sure to turn off the POWER switch before starting installation work.
If installation work is started with the POWER switch left on, it may cause electrical shock or damage to printed circuit boards.

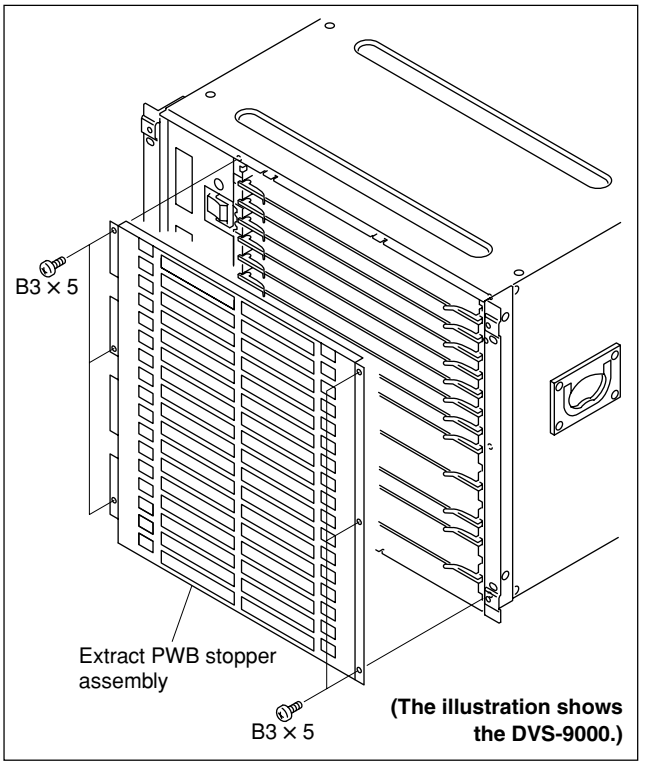
Installation Procedure

1. Turn off the main power of the DVS-9000/9000SF and disconnect the AC power cord from the wall outlet.
2. Loosen the four screws (with drop-safe) and remove the front panel to the arrow.



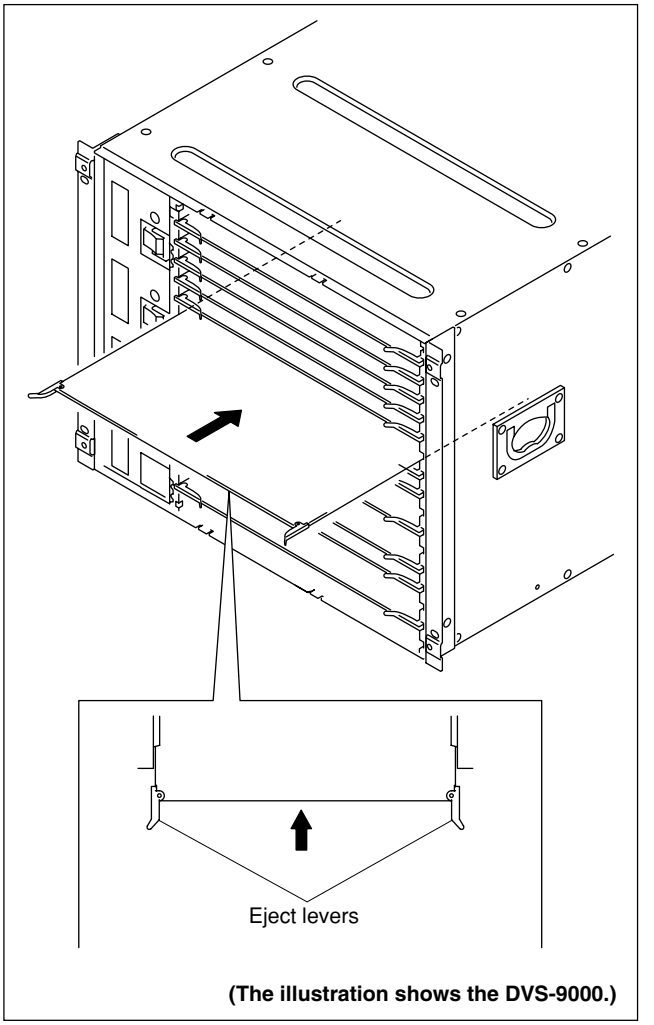
(The illustration shows the DVS-9000.)

3. Remove the screws (DVS-9000: 6 screws, DVS-9000SF: 4 screws) and remove the Extract PWB stopper assembly.



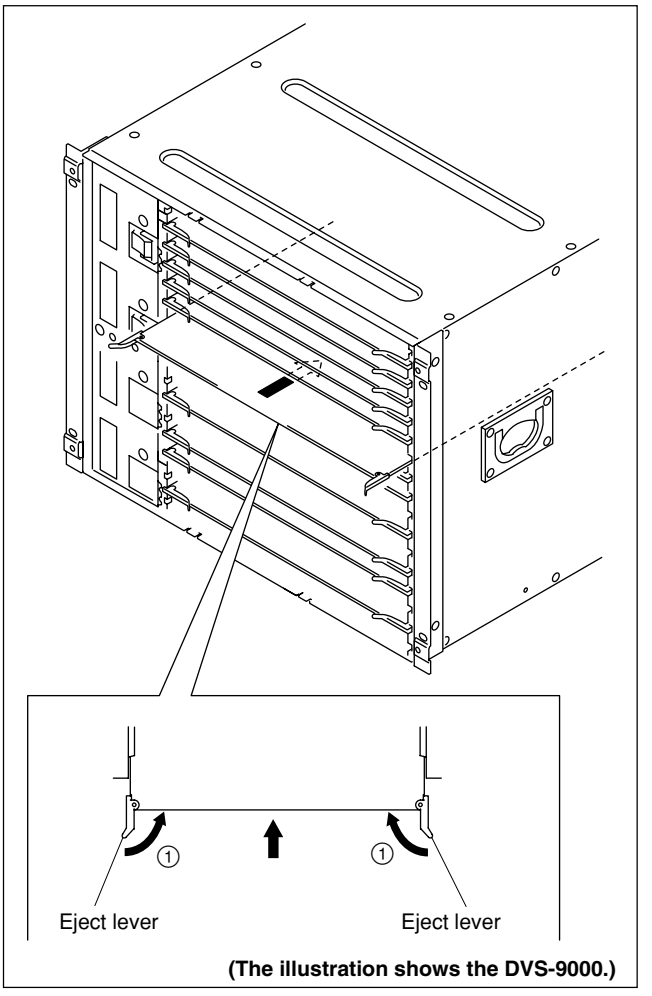
(The illustration shows the DVS-9000.)

4. While the eject levers are opened as shown in the illustration, insert the plug-in board into the board guide rail.



(The illustration shows the DVS-9000.)

5. While closing the eject levers in the direction of arrow ①, push in the plug-in board.



(The illustration shows the DVS-9000.)

6. Attach the plug-in board loose-proof assembly and the front panel by reversing the installation steps of 2, 3.

DVS-9000 option

Name of option	Name of board	Slot on the front side
BKDS-9160	OUT-26 board	16
BKDS-9210	MIX-46 board	6, 7

DVS-9000SF option

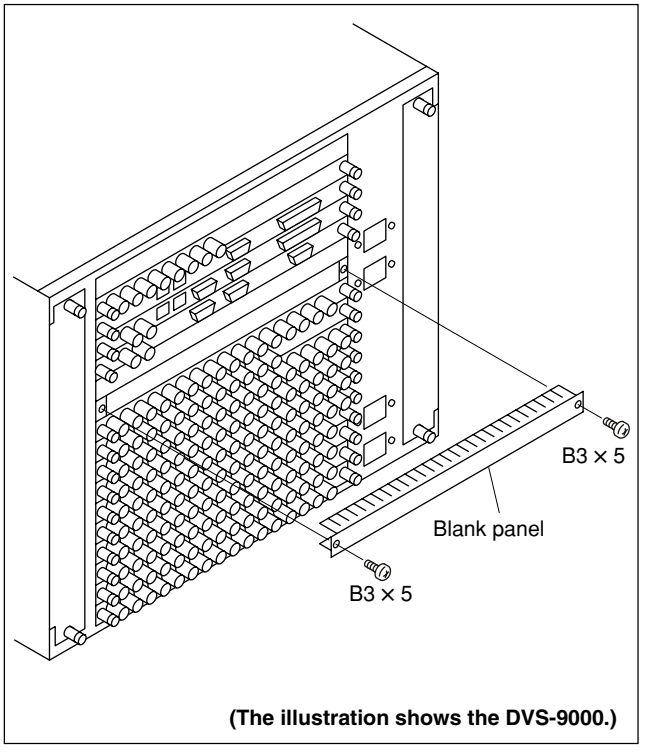
Name of option	Name of board	Slot on the front side
BKDS-9210	MIX-46 board	6

1-4-2. Installing the Connector Board

1. Remove the two screws and remove the blank panel.

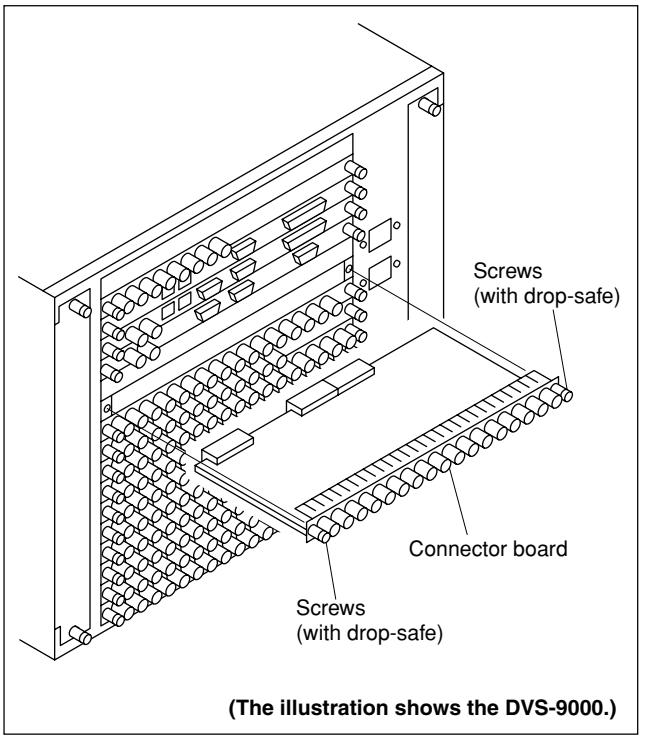
Notes

- To install the connector board into the slot in which the other board is installed already, loosen the two fixing screws and remove the connector board that is installed already.
- Store the removed blank panel in a safe place.



(The illustration shows the DVS-9000.)

2. Insert the connector board horizontally level and secure it with the two fixing screws.



(The illustration shows the DVS-9000.)

DVS-9000 option

Name of option	Name of board	Slot on the rear side
BKDS-9160	CNO-19 board	16, 17
BKDS-9161	CNO-20 board	8
MKS-8110SD	CNI-10 board	11, 12, 13
MKS-8111SD	CNI-17 board	9

DVS-9000SF option

Name of option	Name of board	Slot on the rear side
MKS-8110SD	CNI-10 board	8
BKDS-9162	CNO-19 board	6

1-4-3. Installing the HK-PSU04

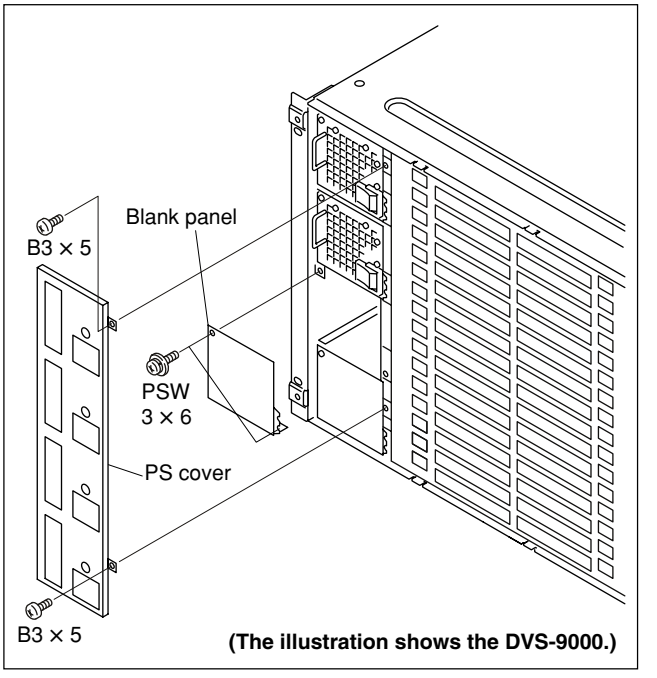
The HK-PSU04 is used after it is installed in the DVS-9000/9000SF.

Note

Before installing the HK-PSU04, be sure to turn off the main power. If the HK-PSU04 is installed while the main power is turned on, it can result in electrical shock or damage to printed circuit boards.

Installation procedure

1. Remove the front panel of the DVS-9000/9000SF. (Refer to Section 1-4-1.)
2. Remove the two screws (B3 × 5) fixing the PS cover, and remove the PS cover.
3. Remove the two screws (PSW3 × 6) fixing the blank panel to the location where the HK-PSU04 is going to be installed. Then remove the blank panel.

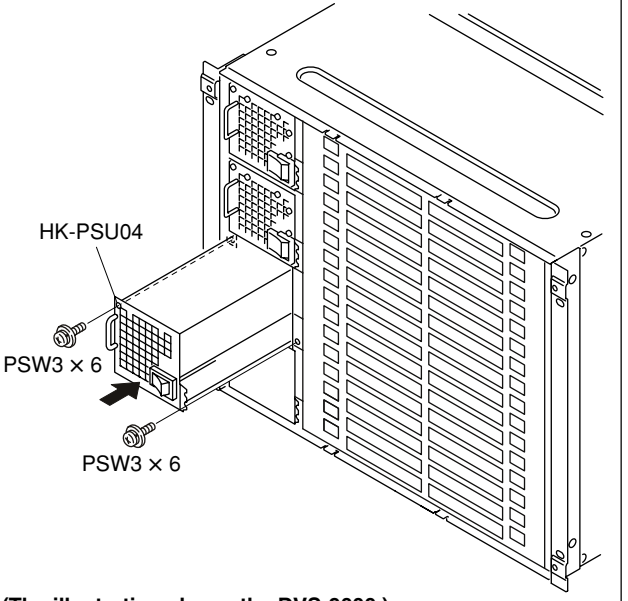


(The illustration shows the DVS-9000.)

Note

Store the removed blank panel in a safe place.

4. Push the portion of the HK-PSU04 marked by the arrow and insert the HK-PSU04 into deep end as far as it will go.
5. Secure the HK-PSU04 with the two screws removed in step 3.



(The illustration shows the DVS-9000.)

6. Attach the PS cover and the front panel by reversing the installation steps of 1, 2.

1-5. Rack Mounting

The DVS-9000/9000SF is mounted in the 19-inch standard rack. To mount the DVS-9000/9000SF in the rack, use the specified rack mount kit and follow the procedure described below.

Specified rack mount kit : RMM-10

Note

If other than the specified rack mount kit is used, the unit may not be mounted in the 19-inch standard rack.

Parts of the RMM-10

- Rack tool 2 pcs
- Right rack mount adapter 1 pc
- Left rack mount adapter 1 pc
- Rack tool attaching screw 6 pcs
  (B4 × 6 : 7-682-560-09)
- Rack tool attaching screw 6 pcs
  (B4 × 10 : 7-682-560-10)

Other required parts

To mount in the rack, the rack mount kit RMM-10 and the following part are required.

- Screw for rack mounting 4 pcs
  (B5 × 12 : 7-682-576-04)

1. Precautions for Rack Mounting

WARNING

- To prevent the rack from falling or moving, fix the rack on a flat and steady floor and the like using bolts or others.
  If the rack falls due to the weight of the equipment, it may cause death or serious injury.
- Be sure to use the specified rack mount kit.
  If not, injury may result and the equipment may fall due to insufficient strength.
- After rack mounting, be sure to tighten the screws on the rack angle and fix the unit in the rack.
  If the screws on the rack angle are not tightened, the unit may slip from the rack and fall, causing injury.

CAUTION

When mounting the unit in the rack, note the following:

- Be sure to mount in the rack with two persons or more.
- Be careful not to catch your fingers or hands in the rack mount rail or others.
- Mount in the rack in a stable position.

Note

If several units are mounted in a rack, it is recommended to install a ventilation fan to prevent temperature rise inside the rack.

2. Rack Mounting Procedure

This section describes the rack mounting procedure using the RMM-10 rack mount kit.

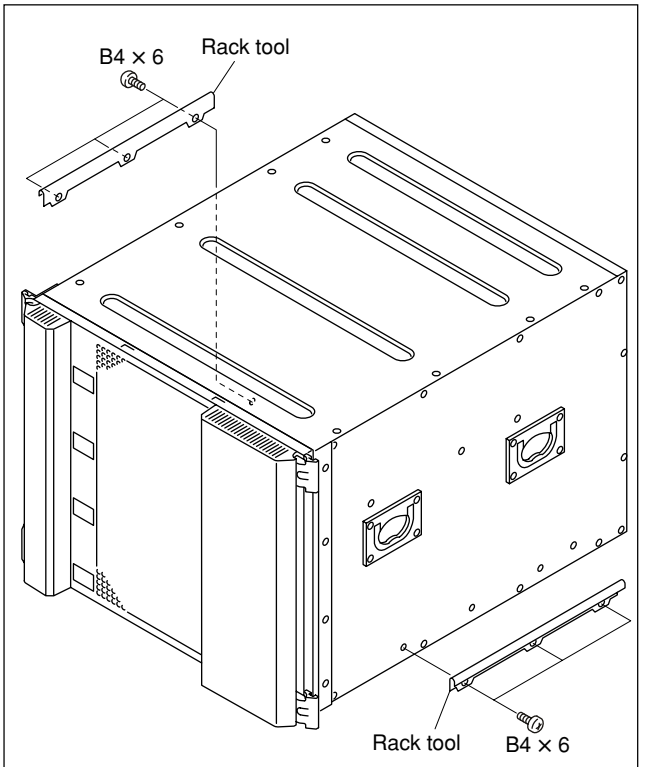
Note

Tighten the screws to the following torque.
Tightening torque : 120 × 10^{-2} N•m {12.2 kgf•cm}

1. Attach the rack tool to the side of the equipment using the specified six screws.

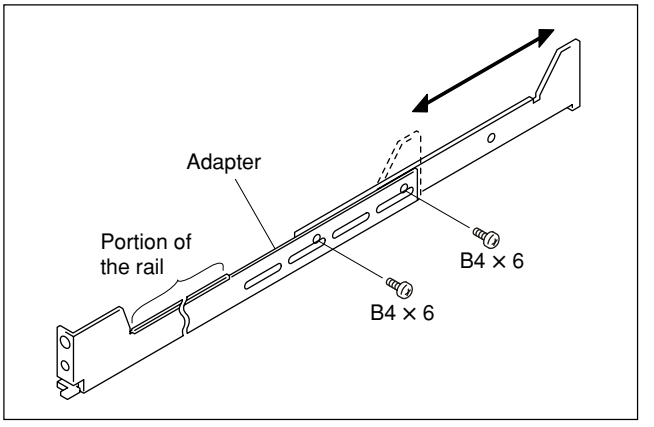
   Note

   Use B4 × 6 screws.



(The illustration shows the DVS-9000.)

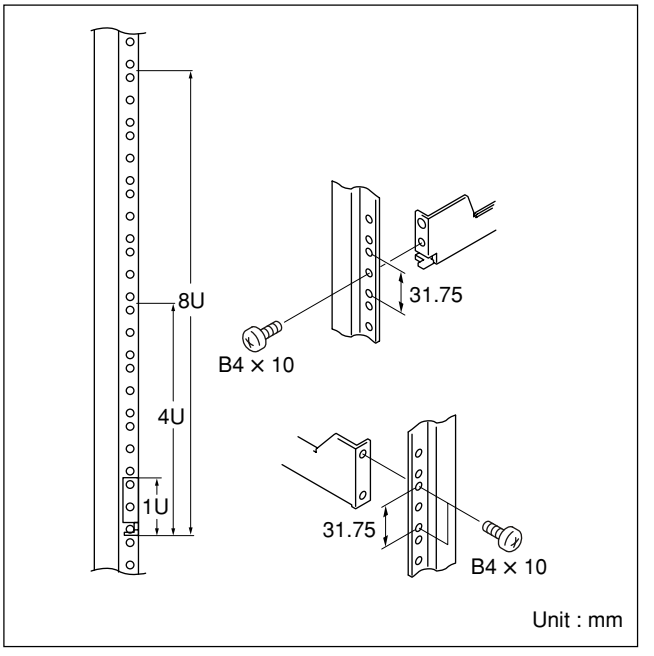
2. Loosen the screws on the rear of the right and left adapters and adjust the length of the adapter according to the depth of the rack.
   (The illustration below shows the left adapter.)



Note

Maximum depth of adapter : 750 mm
Minimum depth of adapter : 595 mm

3. Attach the right and left adapters to the rack completely using the specified six screws.
   (The illustration below shows the left adapter.)

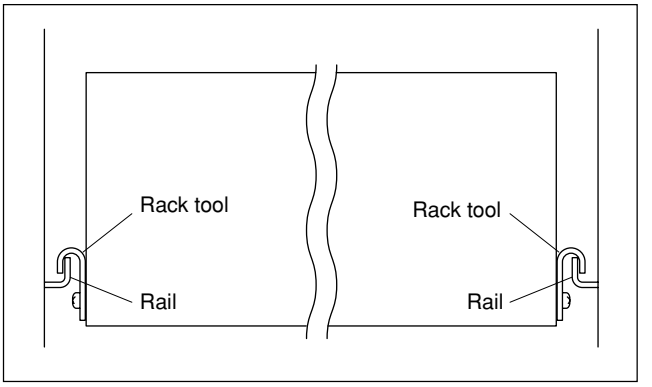


4. Tighten the screws (B4 × 6 : two screws each on the right and left) for adjusting the length of the adapter completely (the screws that were loosened in step 2).
5. Remove the front panel of the equipment.
   (Refer to Section 1-4-1.)

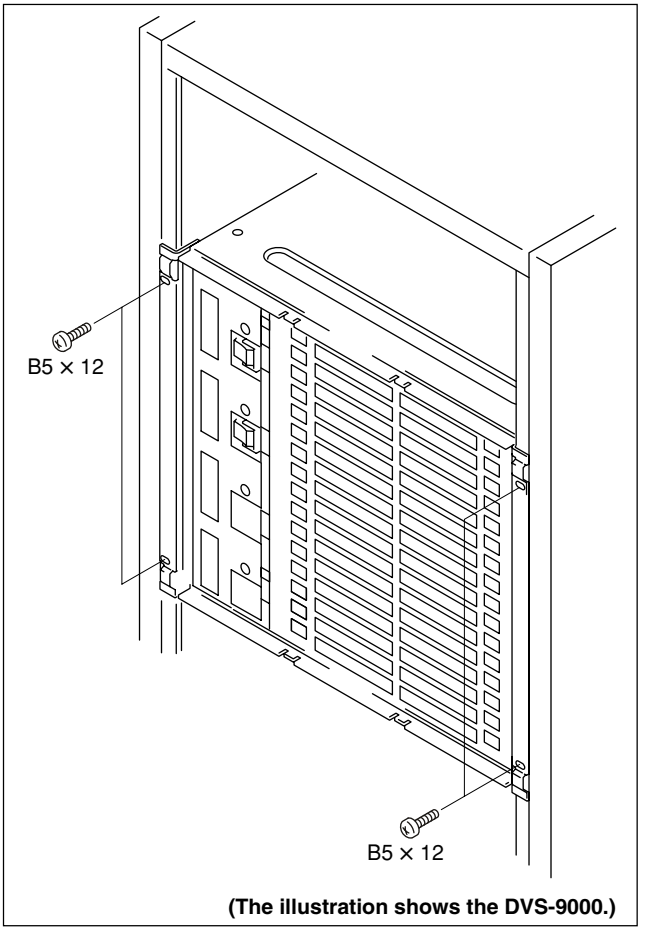
6. Align the groove of the rack tool at the side of the equipment with the rail, and slide the equipment to the rear.

Note

The rack tools are hooked on the rails as shown below.



7. Fix the rack angle in the rack using the specified screws.



(The illustration shows the DVS-9000.)

8. Attach the front panel to the equipment.
(Refer to Section 1-4-1.)

1-6. Matching Connectors

Use the following connectors, cables or equivalents when connecting cables to the unit.

Model name	Panel indication	Connector name	Matching connector and cable	
			Name	Sony part No.
MKS-8110SD	PRIMARY INPUTS 1 to 17	BNC, 75 Ω	Belden 8281 coaxial cable	–
MKS-8111SD	PRIMARY INPUTS 69 to 80			
BKDS-9160 BKDS-9162	OUTPUTS 1 to 12			
BKDS-9161	MONITOR OUTPUTS 49 to 56			
DVS-9000 DVS-9000SF	REF IN	BNC, 75 Ω	Belden 8281 coaxial cable	–
	REF OUT			
	EXT			
	REMOTE 1 to 4	D-sub 9-pin, Female	D-sub 9-pin, Male	
	TERMINAL		Connector 9-pin, Male	1-560-651-00*1
			Junction Shell 9-pin	1-561-749-00
	GPI	D-sub 25-pin, Female	D-sub 25-pin, Male	
			Connector 25-pin, Male	1-560-904-11*1
			Junction Shell 25-pin	1-563-377-11
	DATA	RJ-45 modular jack*2	–	–
	CTRL			

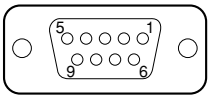
*1 : The following crimp contact is required for the plug.
AWG#18 to #22 : 1-566-493-21
AWG#22 to #24 : 1-564-774-11
AWG#24 to #30 : 1-564-775-11

*2 : Conforms to the IEEE 802.3 Ethernet 100BASE-TX standards.

1-7. Input/Output Signals of Connectors

The input/output signals of the connectors at the rear panel are as follows.

TERMINAL : RS-232C (D-sub 9-pin, Female)
to Terminal

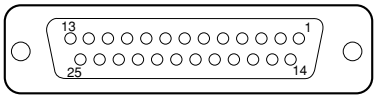


– EXT VIEW –

Pin No.	Signal Name	Function
1	DCD	Data Carrier detect (∗1)
2	RXD	Received data
3	TXD	Transmitted data
4	DTR	Data terminal ready (∗1)
5	GND	Ground
6	DSR	Data set ready (∗1)
7	RTS	Request to send (∗2)
8	CTS	Clear to send (∗2)
9	–	–

(∗1) :Pins 1, 4 and 6 are internally connected together on the CN-2345 board.
(∗2) :Pins 7 and 8 are internally connected together on the CN-2345 board.

GPI : (D-sub 25-pin, Female)
INPUT × 8, TTL
OUTPUT × 4, relay contacts 30 V 0.1 A
(resistive load)
OUTPUT × 4, open collector, 30 V rated voltage



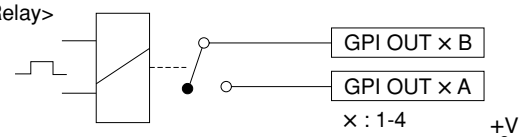
– EXT VIEW –

Pin No.	Signal Name	Function
1	GND	Ground
2	GND	Ground
3	GPI IN 2	General-purpose input
4	GPI IN 4	
5	GPI IN 6	
6	GPI IN 8	
7	GPI OUT 1B	General-purpose relay output (B) (∗3)
8	GPI OUT 2B	
9	GPI OUT 3B	
10	GPI OUT 4B	
11	GPI OUT 6	General-purpose open collector output (∗4)
12	GPI OUT 8	
13	GPI OUT COM	Ground for open collector output
14	GND	Ground
15	GPI IN 1	General-purpose input
16	GPI IN 3	
17	GPI IN 5	
18	GPI IN 7	
19	GPI OUT 1A	General-purpose relay output (A) (∗3)
20	GPI OUT 2A	
21	GPI OUT 3A	
22	GPI OUT 4A	
23	GPI OUT 5	General-purpose open collector output (∗4)
24	GPI OUT 7	
25	GPI OUT COM	Ground for open collector output

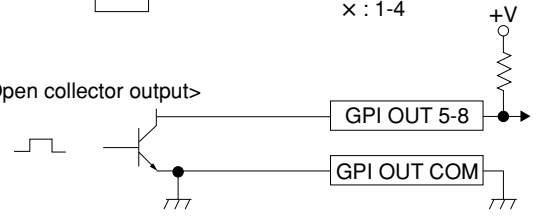
Note

A and B of the same number constitute a pair of relay contacts.

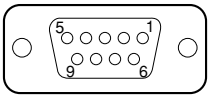
(∗3) <Relay>



(∗4) <Open collector output>



REMOTE 1 to 4 : RS-422A (D-sub 9-pin, Female)
<DEVICE> (∗5) from External Devices

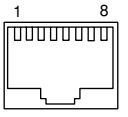


– EXT VIEW –

Pin No.	Signal Name	Function
1	FG	Frame ground
2	TX–	Transmitted data (–)
3	RX+	Received data (+)
4	GND	Common ground
5	–	No Connection
6	GND	Common ground
7	TX+	Transmitted data (+)
8	RX–	Received data (–)
9	–	No Connection

(*5) <DEVICE> : The controlling device.

DATA/CTRL : 100BASE-TX, RJ-45 (8-pin)



– EXT VIEW –

Pin No.	Signal Name	Function
1	TX+	Transmitted data (+)
2	TX–	Transmitted data (–)
3	RX+	Received data (+)
4	–	No Connection
5	–	No Connection
6	RX–	Received data (–)
7	–	No Connection
8	–	No Connection

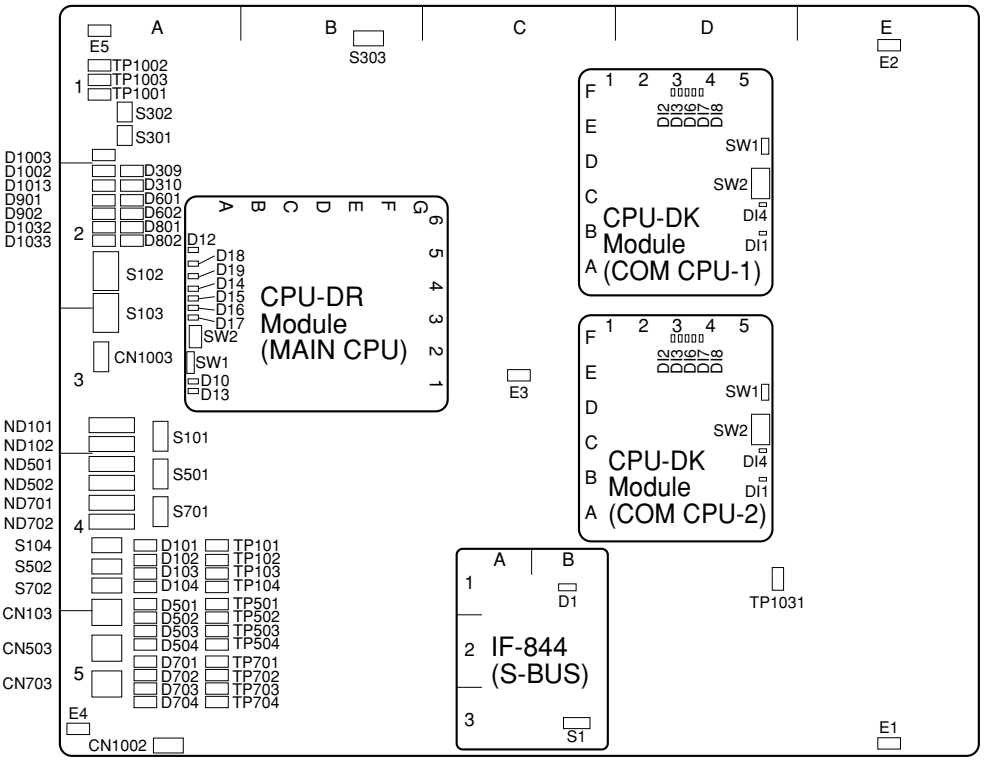
1-8. Checks on Completion of Installation

1-8-1. Description of On-board Switches and LEDs

Note

The number shown in the parentheses ( ) indicated the address on the circuit board.

1. CA-44 board (DVS-9000/9000SF)



A side/Component side

<LED>

D101, D102, D103, D104 (A-4), ND101, ND102 (A-3) : MAIN CPU status LED

Main CPU status indication.

D309 (A-2) : RESET status LED

System reset status indication.
Lit when S301 is pressed or the power voltage drops to +3.3 V.

D310 (A-2) : CPU RESET status LED

CA-44 board reset status indication.
Lit when S302 is pressed or the power voltage drops to +3.3 V.

D501 (A-4), D502, D503, D504 (A-5) : COM CPU-1 status LED

COM CPU-1 status indication.

D601 (A-2) : COM1 ACT status LED

COM CPU-1 Ethernet communication status indication.
Lit while data send or receive is in progress.

D602 (A-2) : COM1 100 status LED

COM CPU-1 Ethernet communication speed status indication.
Lit : 100 Mb/s
Not lit : 10 Mb/s

D701, D702 (A-4), D703, D704 (A-5) : COM CPU-2 status LED

COM CPU-2 status indication.

D801 (A-2) : COM2 ACT status LED

COM CPU-2 Ethernet communication status indication.
Lit while data send or receive is in progress.

D802 (A-2) : COM2 100 status LED
COM CPU-2 Ethernet communication speed status indication.
Lit : 100 Mb/s
Not lit : 10 Mb/s

D901 (A-2) : REF EXT status LED
REF IN signal presence/absence status indication.
Lit when the REF signal is input to the REF IN connector.
Not lit when the REF signal is not input to the REF IN connector.

D902 (A-2) : PLL LOCK status LED
REF IN signal format status indication.
Lit when the REF IN signal matches with the switcher format setup.

D1002 (A-2) : +3.3 V
+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D1003 (A-1) : +12 V
+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D1013 (A-2) : +5 V
+5 V power supply status indication.
Lit when the +5 V power is supplied.

D1032 (A-2) : SBUS TX status LED
S-BUS send status indication.
Lit while the data send is in progress.

D1033 (A-2) : SBUS RX status LED
S-BUS receive status indication.
Lit while the data receive is in progress.

ND501, ND502 (A-4) : COM CPU-1 status LED
COM CPU-1 status indication.

ND701, ND702 (A-4) : COM CPU-2 status LED
COM CPU-2 status indication.

<Switch>
S101 (A-3) : Mode setting switch for the main CPU
Sets the modes of the main CPU.
Default setting when shipped from the factory is all OFF.

S102 (A-2) : Group ID setting switch for LAN
Sets the group ID for connecting LAN.
For details, refer to “MVS-8000 System Setup Manual”.

S103 (A-2) : Unit ID setting switch for LAN
Sets the unit ID for connecting LAN.
For details, refer to “MVS-8000 System Setup Manual”.

S104 (A-4) : Monitor reset switch for the main CPU
Pressing this switch resets the system while maintaining this unit through the main CPU control terminal connector.

S301 (A-1) : System reset switch
Pressing this switch activates the system reset and the system re-starts.

S302 (A-1) : CA-CPU reset switch
Pressing this switch resets the CA-44 board.

S303 (B-1) : Switch setting the number of the power supply units
Sets the number of the power supply units that are required for this unit.
Default setup when shipped from the factory is bits 1 and 2 : OFF and bits 3 and 4 : ON.

S501 (A-4) : Modes setting switch for the COM CPU-1
Sets the modes of the COM CPU-1.
Default setting when shipped from the factory is all OFF.

S502 (A-4) : Monitor reset switch for the COM CPU-1
Pressing this switch resets the system while maintaining this unit through the COM CPU-1 control terminal.

S701 (A-4) : Modes setting switch for the COM CPU-2
Default setting when shipped from the factory is all OFF.

S702 (A-4) : Monitor reset switch for the COM CPU-2
Pressing this switch resets the system while maintaining this unit through the COM CPU-2 control terminal.

<Connector>
CN103 (A-4) : TERMINAL pin
This pin is connected to the main CPU control terminal and used during maintenance.
Conforms to RS-232C.

CN503 (A-5) : TERMINAL pin
This pin is connected to the COM CPU-1 control terminal and used during maintenance.
Conforms to RS-232C.

CN703 (A-5) : TERMINAL pin
This pin is connected to the COM CPU-2 control terminal and used during maintenance.
Conforms to RS-232C.

CN1003 (A-3) : ISP common connector
Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

CN1002 (A-5) : TERMINAL pin
This pin is connected to the S-BUS CPU control terminal and used during maintenance.
Conforms to RS-232C.

<TEST terminal>
E1 (E-5), E2 (E-1), E3 (C-3), E4 (A-5), E5 (A-1) : GND terminal
Use this terminal as the earth point for measuring the respective check terminals.

TP101, TP102, TP103, TP104 (A-4) : Main CPU status check terminal
Main CPU status check terminal.

TP501 (A-4), TP502, TP503, TP504 (A-5) : COM CPU-1 status check terminal
COM CPU-1 status check terminal.

TP701, TP702, TP703, TP704 (A-5) : COM CPU-2 status check terminal
COM CPU-2 status check terminal.

TP1001 (A-1) : +3.3 V check terminal
+3.3 V measuring terminal.

TP1002 (A-1) : +12 V check terminal
+12 V measuring terminal.

TP1003 (A-1) : +5 V check terminal
+5 V measuring terminal.

TP1031 (D-4) : SBUS RX check terminal
S-BUS communication line measuring terminal.

<LED on the CPU DR module> : Main CPU
D10 (green) (A-1) : RUN status LED
RUN status indication.
Lit when the CPU-DR module starts operating.

D12 (green) (A-4) : CD (Card Detect) status LED
Lit when the CPU-DR module is inserted correctly into the parent board.

D13 (green) (A-1) : +2.5 V
Indicates the statue of the +2.5 V power that is generated by the VCC (CORE) and supplied to the CPU-DR module.
Lit while the specified power is turned on.

D14, D15, D16, D17 (A-3) (green) : STATUS1 to STATUS4 status LED
Used for maintenance purpose. Only the STATUS1 LED is lit in normal operation.

D18 (green) (A-4) : +3.3 V
Indicates the statue of the VCC (I/O) power that is supplied to the CPU-DR module.
Lit while the specified power is turned on.

D19 (green) (A-4) : CORE status LED
Indicates the statue of the VCC (CORE) power that is supplied to the CPU-DR module.
Lit while the specified power is turned on.

<Switch on the CPU DR module> : Main CPU
SW1 (A-1) : RESET switch
Pressing this switch resets the CPU-DR module.

Note

In some machines in which the CPU-DR module is installed, the system reset may be activated.

SW2 (A-2) : MODE switch
8-pin DIP switch
Used only for production in the assembly factory. All switches are set to OFF for normal operation.

<LED on the CPU DK module> : COM CPU-1
: COM CPU-2
DI1 (green) (B-5) : CD (Card Detect) status LED
Lit when the CPU-DK module is inserted correctly to the parent board.

DI2 (green) (F-3) : RUN status LED
Lit when the CPU-DK module starts operating.

DI3 (F-3), DI6 (F-3), DI7 (F-3), DI8 (F-4) (green) : STATUS1 to STATUS4 LED

Used for maintenance purpose. Only the STATUS1 LED is lit in normal operation.

DI4 (green) (B-5) : +3.3 V

Indicates the status of the VCC (CORE) and VCC (I/O) powers that are supplied to the CPU-DK module.

<Switch on the CPU DK module> : COM CPU-1
: COM CPU-2

SW1 (D-5) : RESET switch

Pressing this switch resets the CPU-DK module.

Note

In some machines in which the CPU-DK module is installed, the system reset may be activated.

SW2 (C-5) : MODE switch
8-pin DIP switch

Used only for production in the assembly factory. All switches are set to OFF for normal operation.
Default setting when shipped from the factory is all OFF.

<LED on the IF-844 board> : S-BUS
D1 (B-1) : SBUS RX status LED

Lit when receiving data.

<Switch on the IF-844 board> : S-BUS
S1 (B-3) : RESET switch

Pressing this switch resets the IF-844 board.

<TEST terminal on the IF-844 board>
E1 (B-3) : GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

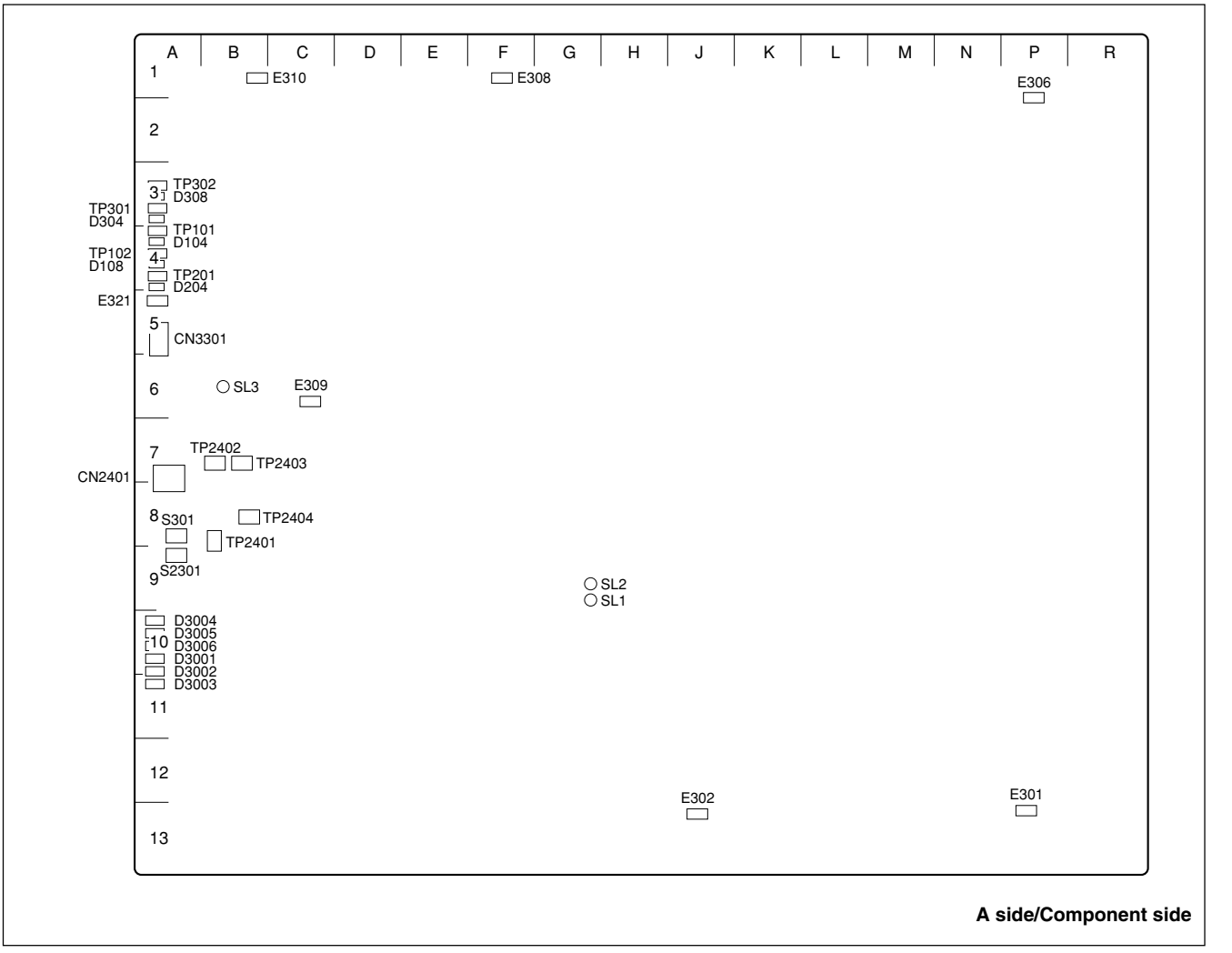
TP1 (A-2) : RX check terminal

S-BUS communication line measuring terminal.

TP2 (A-3) : TEST terminal

Terminal for testing.

2. MIX-46 board (DVS-9000/9000SF/BKDS-9210)



<LED>

D104, D108, D204 (A-4) : +1.8 V-1 to 3

+1.8 V-1 to 3 power supply status indication.
Lit when the +1.8 V-1 to 3 power are supplied.

D304 (A-3) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D308 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D3001 (A-10): DLL UNLOCK status LED

Indicates lock/unlock of the DLL (Delay Locked Loop) in the FPGA.
If this LED lit, the DLL can possibly be unlocked.

D3002 (A-11): PLL UNLOCK status LED

Indicates lock/unlock of the PLL (Phase Locked Loop) in the FPGA.
If this LED lit, the PLL can possibly be unlocked.

D3003 (A-11): CONFIG. ERROR status LED

Indicates the configuration error of the FPGA.
If this LED lit, the FPGA can possibly be working incorrectly.

D3004, D3005, D3006 (A-10): C2, C1 and C0 status LED

Indicates the status of CPU on the circuit board.

<Switch>

S301 (A-8) : MIX-CPU reset switch

Pressing this switch initializes the CPU on the MIX-46 board.

S2031 (A-9) : Monitor reset switch

The reset switch that is used to reset the monitor during maintenance through the terminal.

<Slit land>

SL1, SL2 (G-9) and SL3 (B-6) : JTAG chain switching

They are the slit lands that are used to switch the JTAG chains. Connect these slit lands to open or to close them so that the following statuses can be obtained.

SL1	SL2	SL3	Status
Short	Open	Open	The chain of CPLD only is established.
Open	Short	Short	All of the JTAG devices are connected in chain.

<Connector>

CN2401 (A-7) : TERMINAL pin

This pin is connected to the control terminal and used during maintenance.
Conforms to RS-232C.

CN3301 (A-5) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>

E301 (P-12), E302 (J-13), E306 (P-2), E308 (F-1), E309 (C-6), E310 (B-1), E321 (A-5) : GND terminal

Use this terminal as the earth point for measuring the respective check terminals.

TP101, TP102, TP201 (A-4) : +1.8 V check terminal

+1.8 V-1 to 3 measuring terminal.

TP301 (A-3) : +3.3 V check terminal

+3.3 V measuring terminal.

TP302 (A-3) : +12 V check terminal

+12 V measuring terminal.

TP2401 (B-8) : SYS_CLK signal check terminal

Use to check the SYSTEM CLOCK signal.

TP2402 (B-7) : CPU_CLK signal check terminal

Use to check the CPU CLOCK signal.

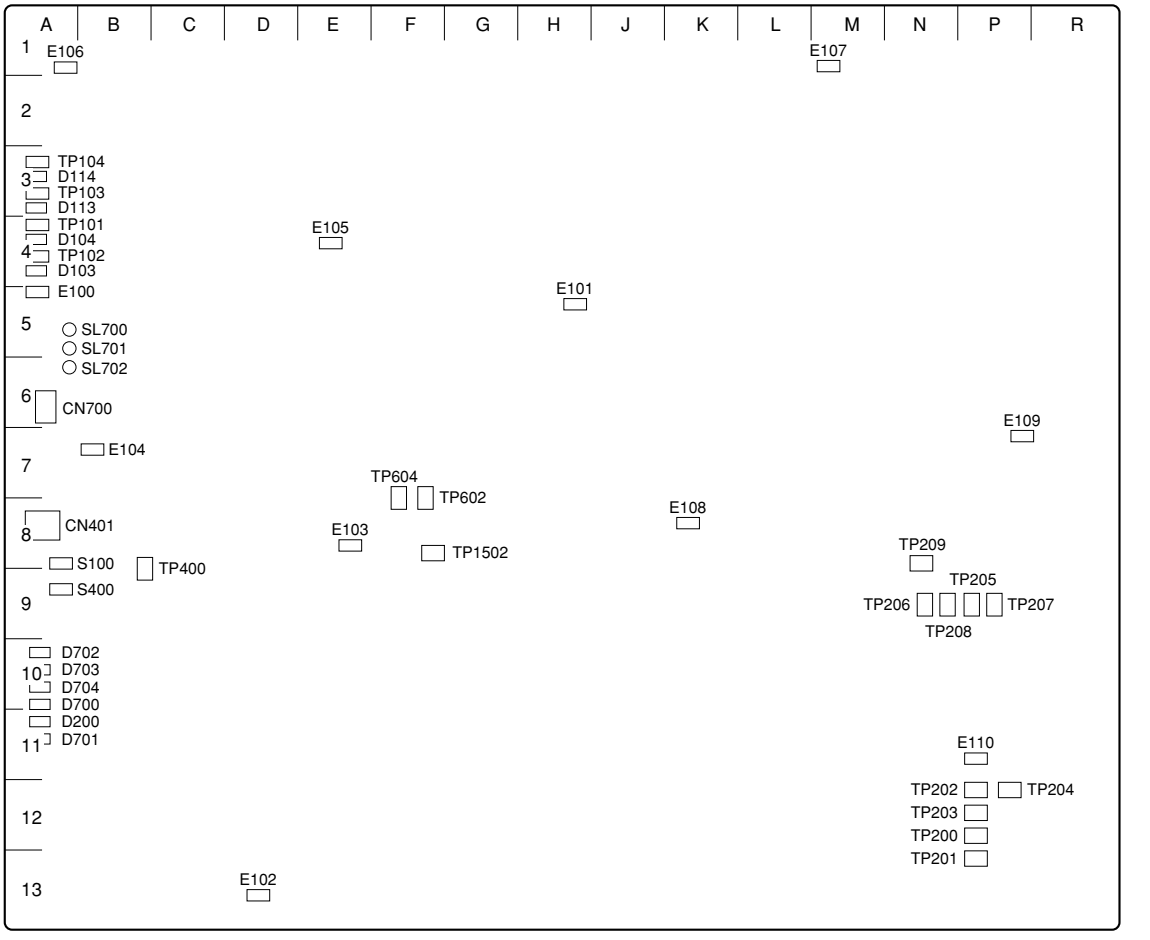
TP2403 (B-7) : CPU_Q CLK signal check terminal

Use to check the CPU Q CLOCK signal.

TP2404 (B-8) : CPU_H CLK signal check terminal

Use to check the CPU H CLOCK signal.

3. MY-108 board (DVS-9000/9000SF)



A side/Component side

<LED>

D103, D107 (A-4) : +1.8 V-1 and 2

+1.8 V-1 and 2 power supply status indication.
Lit when the +1.8 V-1 and 2 power are supplied.

D113 (A-3) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D114 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D200 (A-11) : PLL UNLOCK status LED

Indicates lock/unlock of the PLL (Phase Locked Loop) in the FPGA.
If this LED lit, the PLL can possibly be unlocked.

D700 (A-10) : DLL UNLOCK status LED

Indicates lock/unlock of the DLL (Delay Locked Loop) in the FPGA.
If this LED lit, the DLL can possibly be unlocked.

D701 (A-11) : CONFIG. ERROR status LED

Indicates the configuration error of the FPGA.
If this LED lit, the FPGA can possibly be working incorrectly.

D702, D703, D704 (A-10) : C2, C1 and C0 status LED

Indicates the status of CPU on the circuit board.

<Switch>

S100 (A-8) : MY-CPU reset switch

Pressing this switch initializes the CPU on the MY-108 board.

S400 (A-9) : MONITOR reset switch
The reset switch that is used to reset the monitor during maintenance through the terminal.

<Slit land>
SL700, SL701 (A-5), SL702 (A-6) :JTAG Chain switching
They are the slit lands that are used to switch the JTAG chains. Connect these slit lands to open or to close them so that the following statuses can be obtained.

SL700	SL701	SL702	Status
Short	Open	Open	The chain of CPLD only is established.
Open	Short	Short	All of the JTAG devices are connected in chain.

<Connector>
CN401 (A-8) : TERMINAL pin
This pin is connected to the CPU control terminal and used during maintenance.
Conforms to RS-232C.

CN700 (A-6) : ISP common connector
Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>
E100 (A-5), E101 (H-5), E102 (D-13), E103 (E-8), E104 (B-7), E105 (E-4), E106 (A-1), E107 (M-1), E108 (K-8), E109 (P-6), E110 (P-11) : GND terminal
Use this terminal as the earth point for measuring the respective check terminals.

TP101, TP102 (A-4) : +1.8 V check terminal
+1.8 V-1 and 2 measuring terminal.

TP103 (A-3) : +3.3 V check terminal
+3.3 V measuring terminal.

TP104 (A-3) : +12 V check terminal
+12 V measuring terminal.

TP200 (P-12) : VD (vertical sync) signal check terminal
VD signal measuring terminal.

TP201 (P-13) : HD (horizontal sync) signal check terminal
HD signal measuring terminal.

TP202 (P-12) : FLOE (Field Odd Even) signal check terminal
FLOE signal measuring terminal.

TP203 (P-12) : CKX (control timing) signal check terminal
CKX signal measuring terminal.

TP204 (P-12) : VH CLK signal check terminal
VH CLOCK signal measuring terminal.

TP205 (P-9) : VDO signal check terminal
VDO signal measuring terminal.

TP206 (N-9) : HDO signal check terminal
HDO signal measuring terminal.

TP207 (P-9) : FDO signal check terminal
FDO signal measuring terminal.

TP208 (N-9) : CKXO signal check terminal
CKXO signal measuring terminal.

TP209 (N-8) : V CLKO signal check terminal
V CLKO signal measuring terminal.

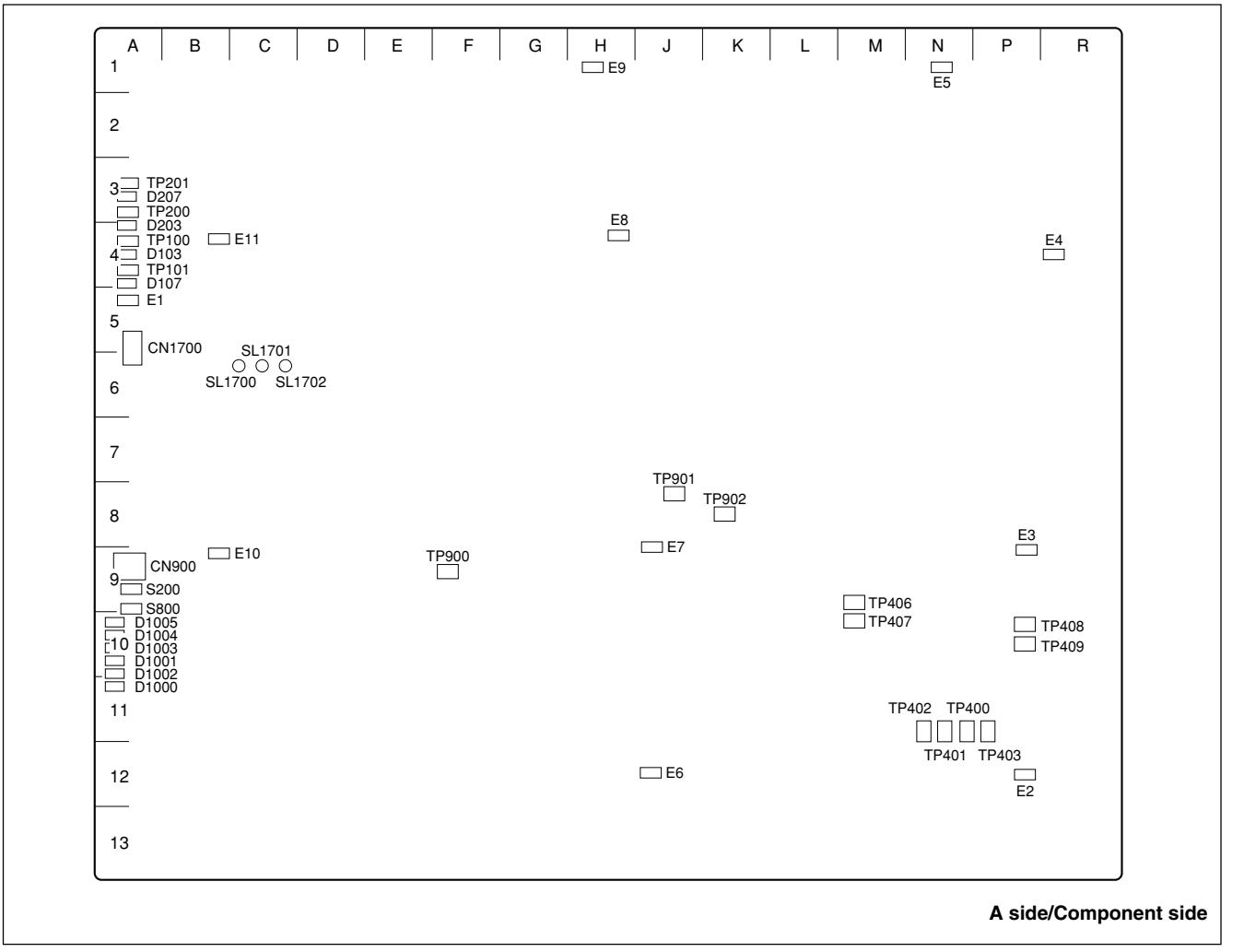
TP400 (C-8) : SYS_CLK signal check terminal
Use to check the SYSTEM CLOCK signal.

TP602 (F-7) : CPU_CLK signal check terminal
Use to check the CPU CLOCK signal.

TP604 (F-7) : CPU_H CLK signal check terminal
Use to check the CPU H CLOCK signal.

TP1502 (F-8) : VCO_CLK signal check terminal
Use to check the VCO CLOCK signal.

4. OUT-26 board (DVS-9000/9000SF/BKDS-9160)



<LED>

D103, D107 (A-4) : +1.8 V-1 and 2

+1.8 V-1 and 2 power supply status indication.
Lit when the +1.8 V-1 and 2 power are supplied.

D203 (A-4) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D207 (A-3) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.
If this LED does not light, the fuse may have blown.

D1000 (A-11) : CONFIG. ERROR status LED

Indicates the configuration error of the FPGA.
If this LED lit, the FPGA can possibly be working incorrectly.

D1001 (A-10) : DLL UNLOCK status LED

Indicates lock/unlock of the DLL (Delay Locked Loop) in the FPGA.
If this LED lit, the DLL can possibly be unlocked.

D1002 (A-10) : PLL UNLOCK status LED

Indicates lock/unlock of the PLL (Phase Locked Loop) in the FPGA.
If this LED lit, the PLL can possibly be unlocked.

D1003, D1004, D1005 (A-10) : C2, C1 and C0 status LED

Indicates the status of CPU on the circuit board.

<Switch>

S200 (A-9) : OUT-CPU reset switch

Pressing this switch initializes the CPU on the OUT-26 board.

S800 (A-10) : MONITOR reset switch
The reset switch that is used to reset the monitor during maintenance through the terminal.

<Slit land>
SL1700 (C-6), SL1701 (C-6), SL1702 (C-6) : JTAG Chain switching
They are the slit lands that are used to switch the JTAG chains. Connect these slit lands to open or to close them so that the following statuses can be obtained.

SL1700	SL1701	SL1702	Status
Short	Open	Open	The chain of CPLD only is established.
Open	Short	Short	All of the JTAG devices are connected in chain.

<Connector>
CN900 (A-9) : TERMINAL pin
This pin is connected to the CPU control terminal and used during maintenance.
Conforms to RS-232C.

CN1700 (A-5) : ISP common connector
Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

<TEST terminal>
E1 (A-5), E2 (P-12), E3 (P-9), E4 (R-4), E5 (N-1), E6 (J-12), E7 (J-9), E8 (H-4), E9 (H-1), E10 (B-9), E11 (B-4) : GND terminal
Use this terminal as the earth point for measuring the respective check terminals.

TP100, TP101 (A-4) : +1.8 V check terminal
+1.8 V-1 and 2 measuring terminal.

TP200 (A-3) : +3.3 V check terminal
+3.3 V measuring terminal.

TP201 (A-3) : +12 V check terminal
+12 V measuring terminal.

TP400 (N-11) : VD (vertical sync) signal check terminal
VD signal measuring terminal.

TP401 (N-11) : HD (horizontal sync) signal check terminal
HD signal measuring terminal.

TP402 (N-11) : FLOE (Field Odd Even) signal check terminal
FLOE signal measuring terminal.

TP403 (P-11) : CKX (control timing) signal check terminal
CKX signal measuring terminal.

TP406 (M-9) : VDO signal check terminal
VDO signal measuring terminal.

TP407 (M-10) : HDO signal check terminal
HDO signal measuring terminal.

TP408 (P-10) : FDO signal check terminal
FDO signal measuring terminal.

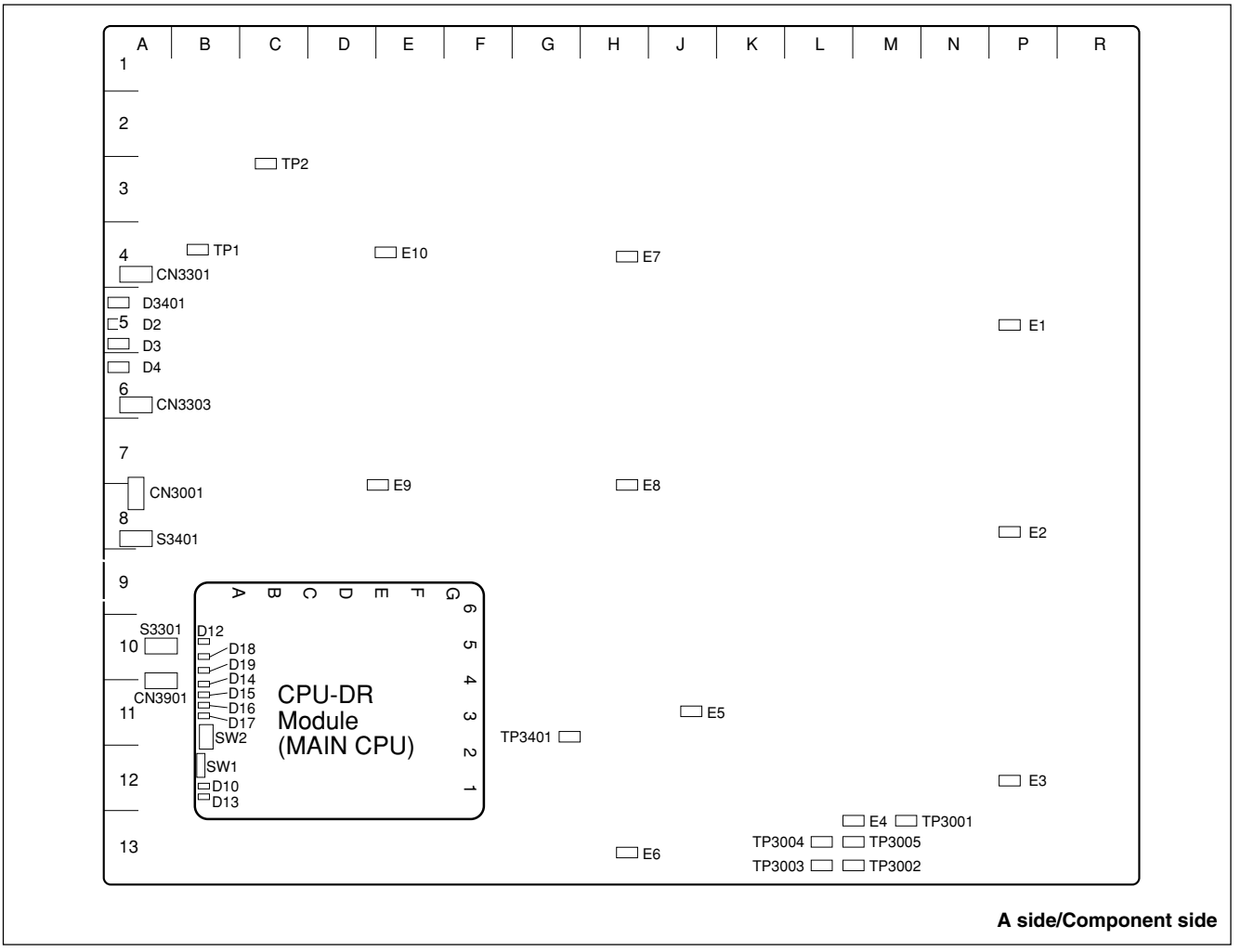
TP409 (P-10) : CKXO signal check terminal
CKXO signal measuring terminal.

TP900 (F-9) : SYS_CLK signal check terminal
Use to check the SYSTEM CLOCK signal.

TP901 (J-8) : CPU_CLK signal check terminal
Use to check the CPU CLOCK signal.

TP902 (K-8) : CPU_H CLK signal check terminal
Use to check the CPU H CLOCK signal.

5. XPT-21 board (DVS-9000/9000SF)



<LED>

D3401 (A-5) : RESET status LED

System reset status indication.
Lit when S3401 is pressed or the power voltage drops to +3.3 V.

D3 (A-5) : +3.3 V

+3.3 V power supply status indication.
Lit when the +3.3 V power is supplied.

D4 (A-6) : +2.5 V

+2.5 V power supply status indication.
Lit when the + 2.5 V power is supplied.

D2 (A-5) : +12 V

+12 V power supply status indication.
Lit when the +12 V power is supplied.

<Switch>

S3401 (A-8) : XPT-RESET switch

Pressing this switch initializes the CPU on the XPT-21 board.

S3301 (A-10) : MONITOR switch

Factory use only. (Do not change the setting.)

<Connector>

CN3001 (A-8) : ISP common connector

Used only for production in the assembly factory. Used for program writing into the JTAG device with ISP.

CN3301 (A-4) : TERMINAL pin

This pin is connected to the CPU control terminal and used during maintenance.
Conforms to RS-232C.

CN3303 (A-6) : DEBUG terminal
Not used.
This terminal conforms to RS-232C.

CN3901 (A-11) : IEEE1394 terminal
Not used.
This terminal conforms to IEEE1394.

<TEST terminal>
E1 (P-4), E2 (P-8), E3 (P-12), E4 (L-12), E5 (J-11), E6 (H-13), E7 (H-4), E8 (H-8), E9 (D-8), E10 (E-4) : GND terminal
Use this terminal as the earth point for measuring the respective check terminals.

TP1 (B-4) : +3.3 V check terminal
+3.3 V measuring terminal.

TP2 (D-3) : +2.5 V check terminal
+2.5 V measuring terminal.

TP3001 (M-12) : VCLK signal check terminal
VCLK signal measuring terminal.

TP3002 (L-13) : VD (vertical sync) signal check terminal
VD signal measuring terminal.

TP3003 (L-13) : HD (horizontal sync) signal check terminal
HD signal measuring terminal.

TP3004 (L-13) : FLOE (Field Odd Even) signal check terminal
FLOE signal measuring terminal.

TP3005 (L-13) : CKX (control timing) signal check terminal
CKX signal measuring terminal.

TP3401 (H-12) : EXT_CLK check terminal
CPU clock measuring terminal.
(Risc Mark CPU clock check terminal)

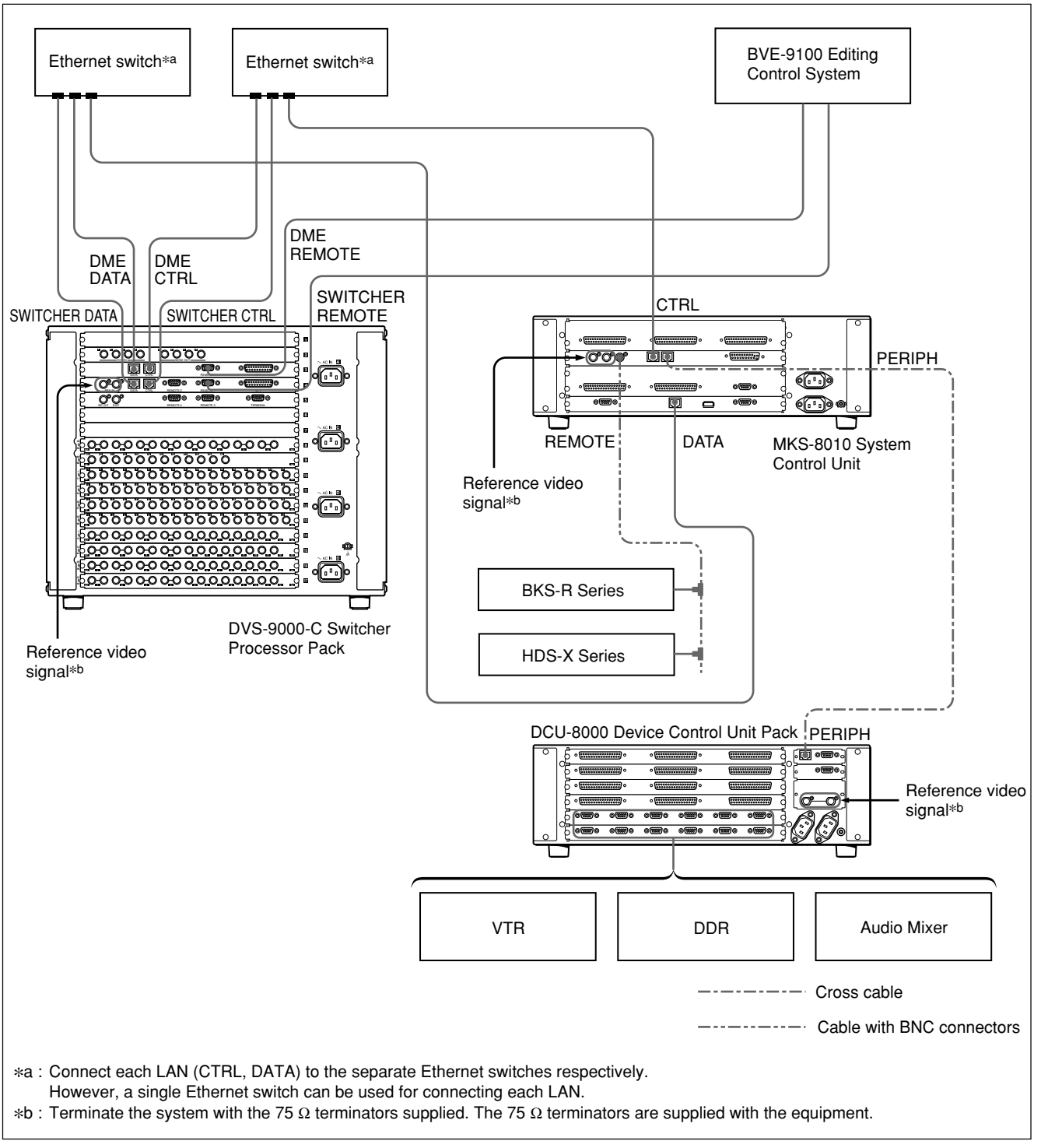
<LED on the CPU DR module> (C-10)
Refer to < LED on the CPU DR module > in “1. CA-44 board”.

<Switch on the CPU DR module> (C-10)
Refer to < Switch on the CPU DR module > in “1. CA-44 board”.

1-9. System Connection

Configure the DVS-9000/9000SF system connections referring to the connection example as shown below.

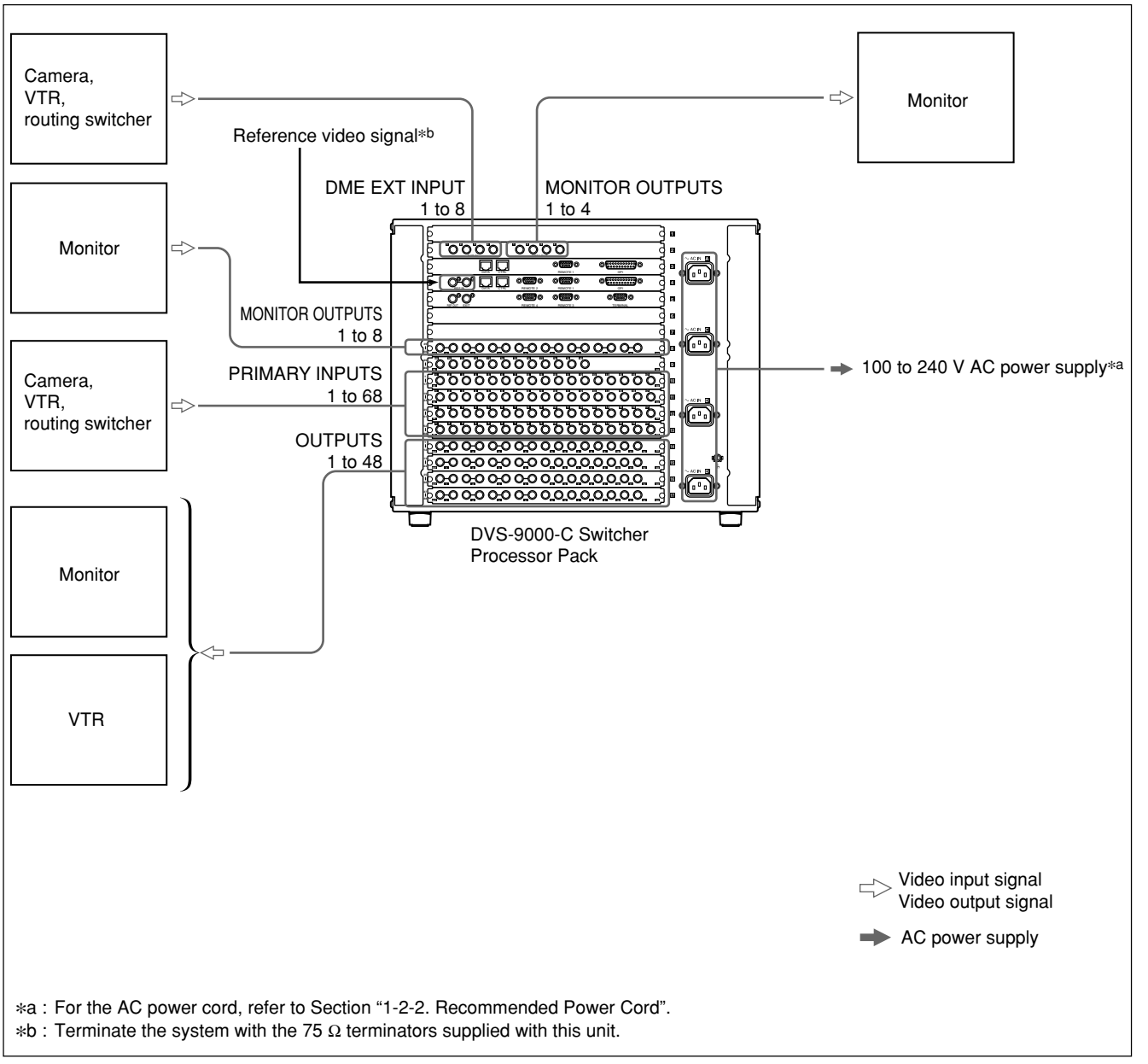
1. Connection example of the DVS-9000 system (The same type of configuration is possible with a DVS-9000SF system.)



*a : Connect each LAN (CTRL, DATA) to the separate Ethernet switches respectively.
However, a single Ethernet switch can be used for connecting each LAN.
*b : Terminate the system with the 75 Ω terminators supplied. The 75 Ω terminators are supplied with the equipment.

2. Flow of Video Signals

The figure below shows the flow of video signals in a DVS-9000 system.
The flow of signals is the same in a DVS-9000SF system

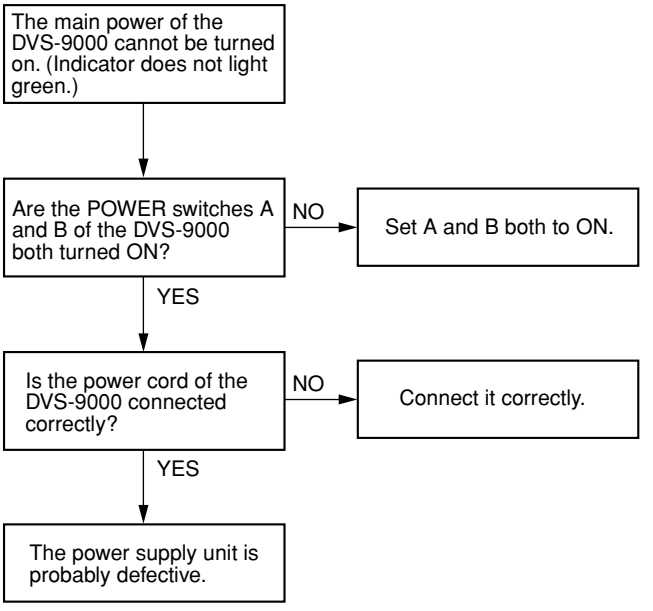


∗a : For the AC power cord, refer to Section “1-2-2. Recommended Power Cord”.
∗b : Terminate the system with the 75 Ω terminators supplied with this unit.

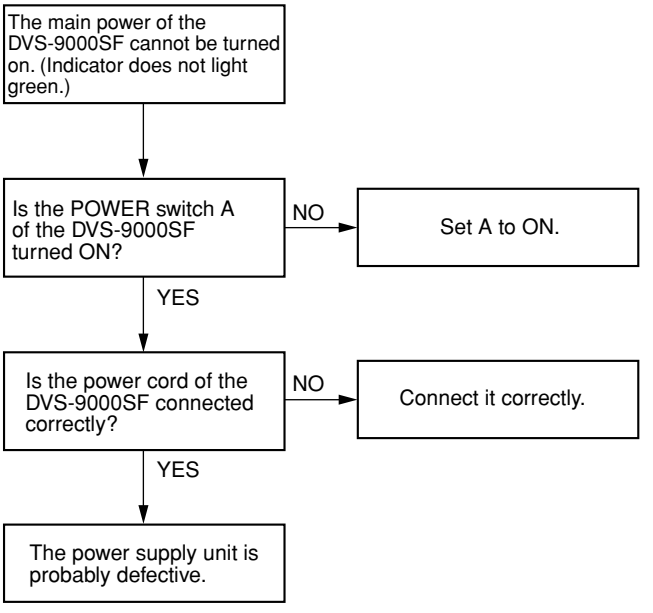
Section 2
Service Overview

2-1. Troubleshooting

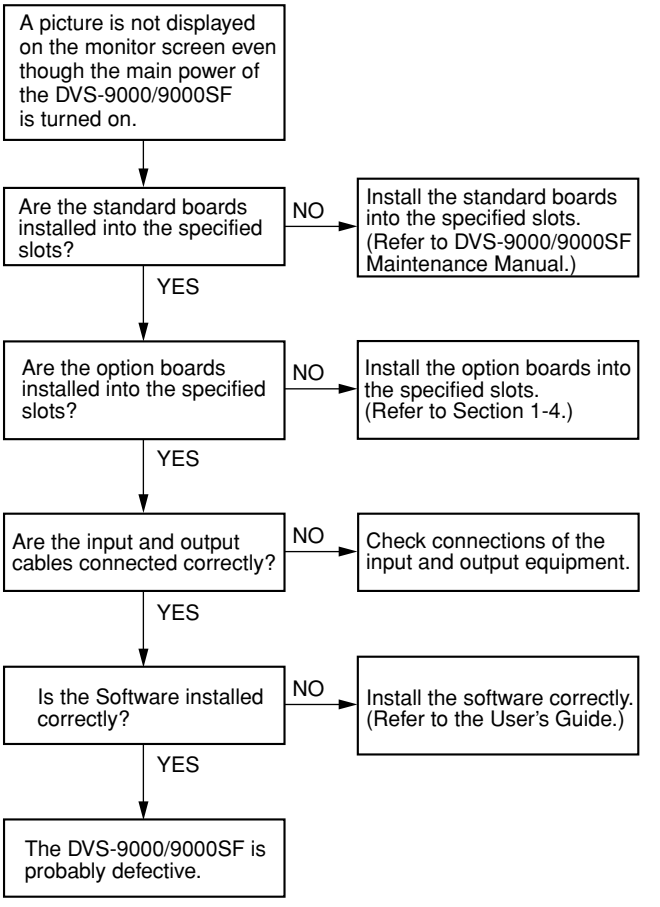
The main power of the DVS-9000 cannot be turned on. (Indicator does not light green.)


The main power of the DVS-9000 cannot be turned on. (Indicator does not light green.)
Are the POWER switches A and B of the DVS-9000 both turned ON?
NO
Set A and B both to ON.
YES
Is the power cord of the DVS-9000 connected correctly?
NO
Connect it correctly.
YES
The power supply unit is probably defective.

The main power of the DVS-9000SF cannot be turned on. (Indicator does not light green.)


The main power of the DVS-9000SF cannot be turned on. (Indicator does not light green.)
Is the POWER switch A of the DVS-9000SF turned ON?
NO
Set A to ON.
YES
Is the power cord of the DVS-9000SF connected correctly?
NO
Connect it correctly.
YES
The power supply unit is probably defective.

The monitor picture is not displayed correctly.


A picture is not displayed on the monitor screen even though the main power of the DVS-9000/9000SF is turned on.
Are the standard boards installed into the specified slots?
NO
Install the standard boards into the specified slots. (Refer to DVS-9000/9000SF Maintenance Manual.)
YES
Are the option boards installed into the specified slots?
NO
Install the option boards into the specified slots. (Refer to Section 1-4.)
YES
Are the input and output cables connected correctly?
NO
Check connections of the input and output equipment.
YES
Is the Software installed correctly?
NO
Install the software correctly. (Refer to the User's Guide.)
YES
The DVS-9000/9000SF is probably defective.

2-2. Periodic Inspection and Maintenance

2-2-1. Cleaning

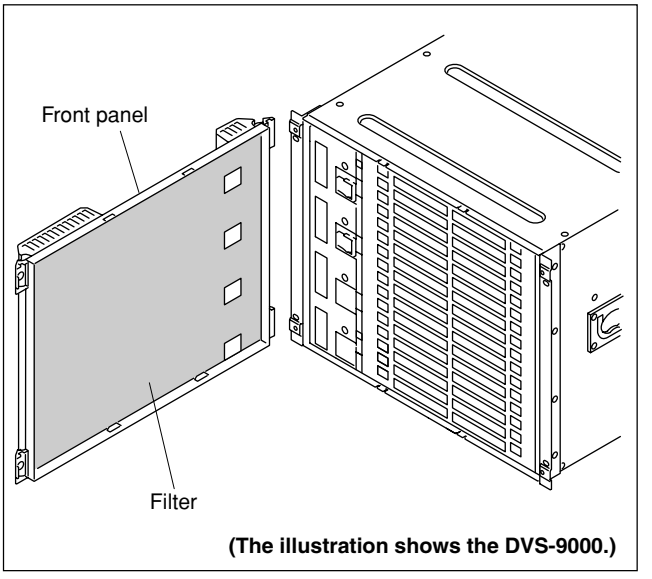
1. Front panel

The filter on the rear of the front panel can easily accumulate the dust. Be sure to remove dust by cleaning as follows.

(1) Remove the front panel. (Refer to Section 1-4-1.)
(2) Remove the dust accumulated on the filter with a vacuum cleaner.

Note

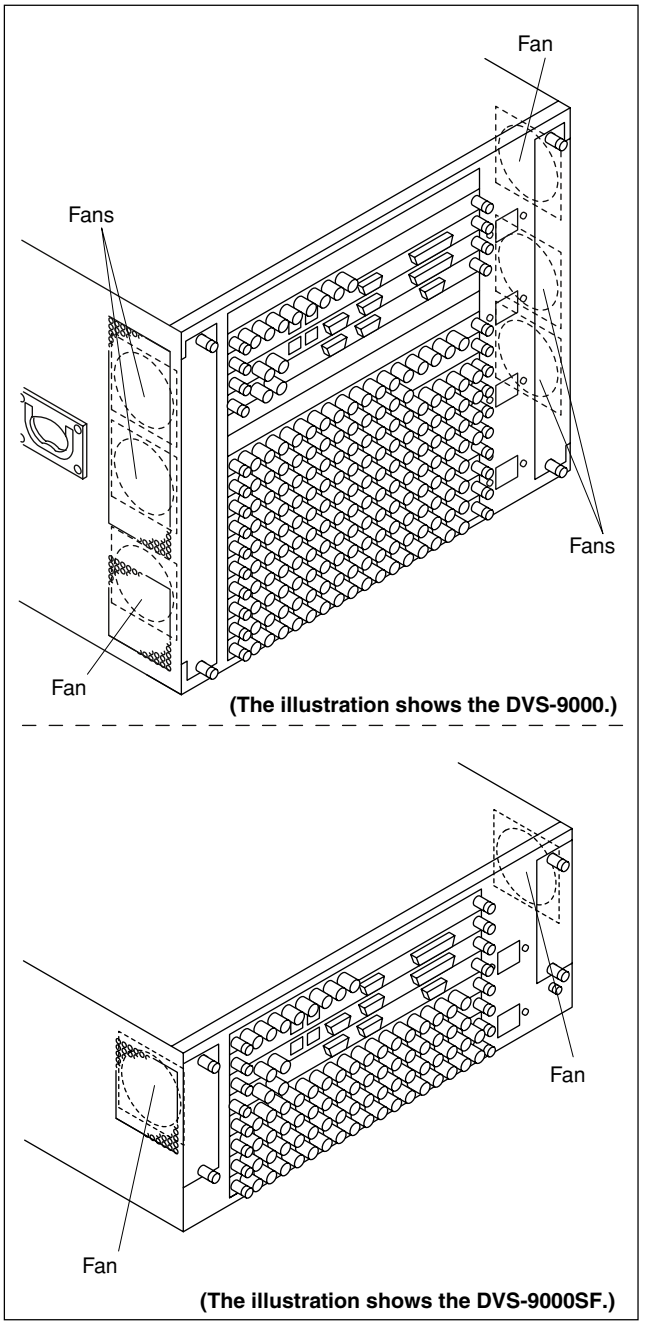
Cleaning the filter by washing in water is recommended when there is a heavy accumulation of dust.
Be sure to dry the filter completely after it has been washed.



(The illustration shows the DVS-9000.)

2. Fan

DVS-9000 series is air-cooled by the fans (on both sides). If dust has accumulated in the intake of the fan, air is prevented from flowing smoothly and this may result in a temperature rise inside the machine. This may have an adverse effect on performance and the life of the machine. Cleaning of the fan every month is recommended.
Contact your local Sony Sales Office/Service Center for information on cleaning the fan.



(The illustration shows the DVS-9000.)

(The illustration shows the DVS-9000SF.)

2-3. About the Data Backup Capacitor

A large capacitor is installed on the CA-44 board in order to backup the memory storing the setup and other data in the DVS-9000 series.
Leave the main power of the DVS-9000 series turned on for one hour or longer in order to charge the large capacitor. The data can be backed up for about one week when the capacitor is fully charged under the normal operating temperature.

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